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| **10th Grade Geometry B Unit 6 Algebra Review: Linear and Non-linear Equations**  **15 Days**  **February 7, 2011-March 11, 2011**   |  |  |  |  | | --- | --- | --- | --- | | **Pre-Assess**  **1 Day** | **Instruction**  **Approx 19 days** | **Summative Assessment**  **1 Day**  **Week of March 7, 2011** | **Re-teach/Extend**  **3 Days** |   **Big Idea:** Continuing the knowledge of linear functions in real world situations  **Essential Question:** What are the advantages and disadvantages of using the various forms of functional relationships in the real world? |

| State Frameworks/  Standard indicators | Essential  Skills | Essential  Concepts | Grade Level Essential Targets  (GLETs) | Materials/  Resources |
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| 2.1.a Model real world phenomena involving relationships that are   * linear * non-linear   In the form of:   * functions * equations * inequalities   recursive process | Model | Relationships  Linear,  Nonlinear  Functions  Equations  Inequalities,  Recursive processes | Creates an appropriate model to solve a given problem (linear and non-linear)using one or more of the following forms:   * Linear Functions, * Equations, * Continuous or discrete graphs |  |
| 2.2.a Represent functional relationships using:   * written explanations, * tables, * equations and * graphs   and describe the connections among these representations | Repesent  Describe | Functional relationships  Written explanations  Tables  Graphs  Connections between representations | * Writes linear equations given ordered pairs * Writes the equation of a line when given the graph of a line and vice versa * Uses ordered pairs to graph a line * Uses ordered pairs to graph a parabola * Vocab: quadratic, polynomial, parabola, linear, function, discrete, continuous * Determines slope from a linear equation and/or from a graph * Using slope, identifies parallel and perpendicular lines * Recognizes the slope of horizontal and vertical lines * Interprets the meaning of slope and intercepts in problem solving situations |  |
| 2.2b Convert from one functional representation to another | Convert | Functional representations | * Translate between functional representations of linear functions * (tables, graphs, verbal rules, standard algebraic notation) * Verbal rules to include converting from spoken language to an equation |  |
| 2.2.c Interpret a graphical representation of a real world situation. | Interpret | Graphical representations | * Identifying max and min values and their real-world meanings in linear and non-linear functions * Identify the real world meaning of a positive slope vs. a negative slope, undefined and zero slope * Explain the meaning of the relative steepness of a slope * Explain the meaning of the horizontal and vertical intercepts * Identify and explain domain and range of linear and non-linear graphs |  |
| 2.3.a Solve problems involving functions and relations using   * Calculators * Graphs * Tables * Algebraic methods | Solve | Functions  Relations | * Solve problems involving non-linear functions and relations using Graphs, Tables, Algebraic methods (including: setting up and solving equations, and using properties of equations) |  |
| 2.3.b Solve simple systems of equations using  algebraic, graphic, or numeric methods given a description of the situation. | Solve | Simple systems of equations.  Algebraic,  Graphic,  Numeric methods | * Solves problems involving a system of linear equations using various methods * Algebraic methods to include elimination and substitution * Graphic methods |  |
| 2.4a Identify and interpret x and y intercepts in the context of a problem. |  |  | * Solves for x and y intercepts of linear equations using both graphic and algebraic methods |  |
| 2.4b Using a graph, identify the maximum and minimum value within a given domain |  |  | * Identify local max and min from a graph |  |
| 2.5.a Graph solutions to equations and inequalities in one and two dimensions and determine solutions | Graph | Solutions  Equations  Inequatlities  One dimensional problems  Two dimensional problems | * Solve linear equations, and quadratics using graphs * Graph linear equations |  |
| 5.1.c Given the rate of change, model real world problems algebraically or graphically |  |  | * + Graph slope to model real world problems   + Given a graph, interpret the meaning of slope to explain a real world problem |  |